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CLINICAL VIGNETTE

Pulmonary calciphylaxis

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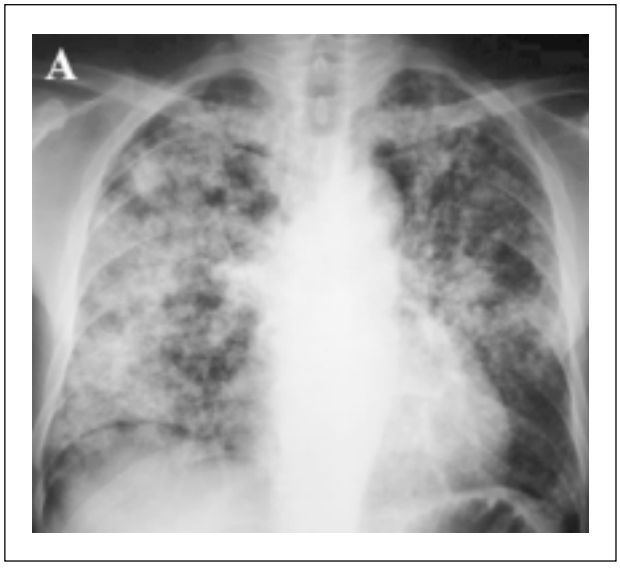
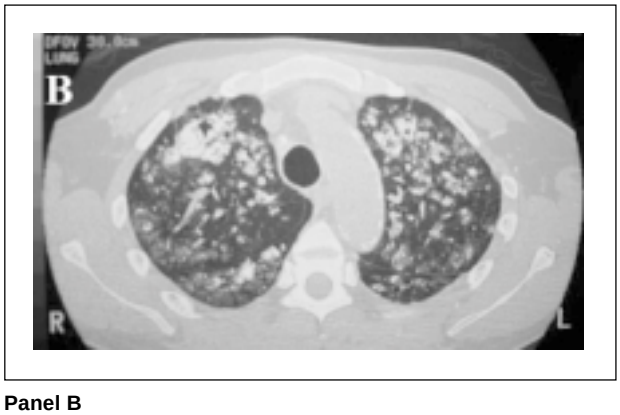
A 45-year-old man developed severe pneumonia after receiving a cadaveric renal transplant. After resolution of the infection, there were persistent diffuse bilateral pulmonary infiltrates on his chest radiograph (Panel A). A lung function test demonstrated a restrictive pattern with reduced carbon monoxide diffusing capacity. A computed tomography scan of the thorax revealed numerous calcified nodules in a predominantly centrilobular pattern of distribution (Panel B), suggestive of metastatic calcification. This diagnosis was supported by whole body bone scintigraphy using ^{99m}Tc-methylene disphosphonate, which showed intense tracer uptake over both upper zones of the lung, and moderate uptake over the heart, stomach, both the native and transplant kidneys, and both shoulder joints and femurs (Panel C). His hand radiograph also displayed linear soft tissue and vascular calcifications (Panel D, arrows).

Metastatic calcification results from precipitation of amorphous calcium phosphate in soft tissue and arterial walls, and calcium hydroxyapatite in organs. Calciphylaxis is a rapidly developing and life-threatening process of vascular calcium deposition with prominent cutaneous manifestation, most often seen in the setting of end-stage renal disease. Metastatic calcification can also be present in the heart, lungs, stomach, kidneys, skeletal muscle, and around large joints, where it is seldom detectable radiographically. Pulmonary involvement is a rare clinical event. Pathophysiologic states predisposing to pulmonary calcification include hypercalcemia, a local alkaline environment, and previous lung injury. In the index patient, pneumonia is believed to have caused local synthesis of parathyroid hormone-related protein that, along with posttransplant hypercalcemia and preexisting end-stage renal disease, contributed to calcium deposition. Bone scanning agents, such as ^{99m}Tc-methylene disphosphonate, accumulate to various degrees within extraskeletal sites of metastatic calcification, and can be a useful diagnostic tool.



Panel A



Panel B

Panel C

Panel D